

A STUDY OF THE NATIVITY, SEX AND AGE,
OCCUPATION, AND SOCIAL CONDITION OF
THREE THOUSAND FOUR HUNDRED AND
THIRTY-SIX CASES OF SENILE CATARACT
OPERATED UPON AT THE WILLS HOSPITAL
IN PHILADELPHIA.*

BY CHARLES A. OLIVER, A. M., M. D.,
Philadelphia.

The results given in this communication are based upon the findings which have been obtained in an extended study of three thousand four hundred and thirty-six cases of so called ordinary mature senile cataract operated on by different methods of extraction by the various members of the attending staff of Wills Hospital in Philadelphia, during the past thirty-five years.

All of the records of the cases from which the data have been obtained have been personally searched by the writer and four of his immediate assistants,¹ during a period of several months time.

Lenticular disturbance of both primary and secondary types from coarse traumatism, and gross associated and causative local and general disease, have been excluded from the lists; while secondary cataract (not infrequently found as the result of imperfect and faulty operative methods) has not been used. The cases employed have been limited as far as possible, to those in which the usual clinical appearances of so called senile cataract have not been complicated by any other demonstrable expression of cause and effect, than those which are signif-

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icant of the gradual retrograde changes of more or less active life denominated by senility, a mere local condition representative of one of the usual degeneration signs of "wear" (and necessarily "tear") of tissue. A true senile metamorphosis

Throughout the search among the original records, which fortunately, have been made by some of the most competent and best known ophthalmic observers in the country, due consideration has been given to avoid anything which might be considered in the least as uncertain: Thus separated from nearly twenty-eight hundred additional cases of congenital, and acquired complicated and gross secondary forms of lenticular disturbance (aggregating as shown by the annual reports of the hospital, to more than six thousand cases which have been operated on in the institution during that period of time,² and confined to a minimum time limit of forty years for each subject (an age limit, which, as proved by a personal careful revisional study of the entire series of cases here given, made for both forty-five years and fifty years as the youngest age has not practically altered the results herewith oftered in any other way than to add respectively some one and three years to the average findings)

In order that the results here given, might not be considered uncertain through preconception, the compilation of the variously related tables, which in some instances assumed vast proportions, were relegated to special ophthalmic assistants who had been trained for particular types of work by the writer, so that in no manner was there any accidental or intentional collusion: This done, all of the obtained data were retabulated into briefer and less

* A carefully made study of the entire number of cases operated on at the hospital during the years named in this paper shows that the proportion of the operations to the total number of new cases seen was about one to four (77,373 operations upon 318,924 patients), and that the proportion of all cataracts operated on to the total number of operations was about one to twelve (6,190 cataract operations).

complex forms by the writer, and the findings were arranged logically into a series of, at least, self-evident resultants, which, in order to avoid the giving of much useless time consuming and undue space taking detail in such a communication as this, are here expressed in the briefest way.

(1) *Nativity*: As might be expected from the generally known and historically well understood several great influxes of foreign national element (particularly the Welsh, the English, the German, the Irish, the Italian, the Austrian and the Russian in the order here given) into this part of the United States of America, nativity has exerted a marked influence upon the obtained results. To such a degree has this affected the entire question, that it has been found necessary to separate all of the cases into two great groupings, the foreign and the native born, each of which has been subdivided into country and state.

Primarily, and based upon sufficiently broad evidences in every class that has been used, it has been found that there were fifteen hundred and thirty-five foreign born cases, and nineteen hundred and one native born ones, a rough ratio of three (+) cases to four (—) cases. Of the foreign born groupings, Ireland furnished the greatest number throughout the three and a half decades; actually rising to some fifty-five per cent. This was closely followed by Germany with something over thirty per cent., England with ten per cent. and Wales and Scotland with three and two per cent. respectively.³

Among the native born, Pennsylvania, with its preponderant sixty-five per cent., naturally gave a long lead; followed by fifteen per cent. for New Jersey; ten per cent. for Delaware, and five per cent.

³ The representatives of other nations found in the lists, such as from Belgium, Finland, France, Holland, Sweden, and the West Indies, were comparatively so few (some eighty cases) as to be considered practically worthless for accurate statistical work. So, too, with the races, which question, however, will receive consideration in a later paper bearing upon a similar subject.

each for Maryland and New York. Many stray cases from the New England, the Southern, and the Western States—distributed particularly throughout the third and the last half decades, are to be found; but like those of the foreign lists, they have been excluded from the tables by reason of comparative fewness of numbers.

(2) *Sex and Age*: In general, it was found that during the decades from 1871 to 1880 inclusive, the average age of operation for men was 62.2 years; during the decade from 1881 to 1890 inclusive, it had slightly increased (63.3 years); during that from 1890 to 1900 inclusive, it had again risen slightly—to 63.7 years; while during the last five years, 1901 to 1905 inclusive, it had reached the high average of sixty-six years; thus giving a rough general average of about sixty-three years for the thirty-five years time.

Among women, the general average age, while equal to that for men, (about sixty-three years), showed an increase, which, while not so great, was certain: That for the first decade being 62.5 years; that for the second decade 63.9 years; that for the third decade 63.5 years (a slight fall); and that for the last five years having risen to 63.8 years.

With the native born male American, there existed the highest average age for operation, and hence most probable that of maturity of his cataract. During the first decade, it was 64.5 years, increasing one-tenth to 64.6 years for the second decade, and rising another tenth (64.7 years) in the third decade,—until in the first half of the last decade, (to date,) it has arisen to the remarkable average of 67.6 years. The Irish male, commencing at 61.7 years, falling two-tenths (61.5 years) in the second decade, and rising four tenths (61.9 years) in the third, showed a final increase of six tenths (62.5 years) in the last half decade: The male German beginning lower at 60.6 years, gave a rise to 60.9

years in the second decade, with a sudden jump to 64 years in the third,—to which he finally added eight tenths of a year, (64.8 years). The Englishman and the Scotchman at 60 years and 59 years each, rose to 63.5 years and 60 years, with a rise of the former to 65.3 years, and a fall of the latter to 58 years,—to at last give the phenomenal jumps of 70 years and 71 years respectively.*

Among seven hundred and thirty native born women, forming about fifty per cent. of the total of fourteen hundred and fifty-two female cases in the series, it was found that the average operation age during the first decade was 63.1 years, increasing in the second decade to 65.4 years, and decreasing in the third decade to 64.3 years; ultimately rising in the last five years, to 63.8 years: Thus giving an increase of seven tenths of a year as the general average. The Irish female ratio increased regularly through the four decades from 60 years, to 60.8 years, to 62.1 years, and to 63.2 years as the final average, a very marked gain in the proportion. The German female, commencing with 62 years, fell to 60.8 years in the second decade, to rise to 63.9 years in the third; and to give an enormous leap to 68.5 years as the average for the last half decade; a most remarkable betterment. The English woman and the Scotch woman, commencing at 62 years and 64 years respectively, suddenly rose to 64 years and 73 years each, to again fall very low, 62 years and 60 years each, but ultimately to reach 63.2 years as the final for the former, with a remarkable jump to 73 years as the final for the latter. All the representatives of the other nations, among whom there was sufficient material for proper averaging, showed

* Native Canadians gave a slight increase over natives of England and Scotland. As the male Welsh have always formed a large contingent in the practice of this hospital, they were considered in detail. Comparatively medium at first with 62 years, they fell, with just as many in number operated upon, to 57 years in the second decade, to rise to 61 years, and then to 62 years—their original average. From the first male Russian

a decided betterment in the ratios that were obtained.

(3) *Occupation*: It was soon realized that as occupation among the male subject played such an important part in regard to the maturity, and even causation of the cataractous condition, it was necessary to divide the patient's vocations into four classes; (a), the unskilled laborer with his comparatively unused for near work eyes; (b), the skilled workman, whose eyes are incessantly exposed to bright glares of light and high temperatures of heat; (c), the high grade artisan, who requires accurate eyesight for proper manipulative procedures; and (d), the brain worker, whose entire time is sedentarily occupied with efforts at close vision.⁵

The first great class, (a), composed principally of out of door laborers, such as boatmen, drivers, farmers, hostlers, miners, porters, stevedores, and watchmen, although by far the greatest in number, gave the highest operative age average, sixty-six years throughout the entire three and a half decades; the average practically remaining the same.

The second class, (b), made up of blacksmiths, glass blowers, puddlers, and other workers in super-

operated upon in 1878 to the quite recently marked increase in his countrymen, the average age of each decade has always been low: 51, 51, 56, and 58 years. For the past ten years there have been great numbers of young Austrians, Hungarians, Poles, and Russians affected with the traumatic types of the affection, but very few thus far with the senile defect.

In an extended supplemental study in regard to the seasons of the year during which most cataract procedures were done, but which, by reason that Wills' Hospital, through custom, does but few if any cataract operations during the summer months, have not been included in this paper, some very curious findings in regard to the sex of the patient operated upon appeared. Year after year the proportion of men and women operated upon during January, February, and March was five to three; during April, May, and June, five to four; and during July, August, and September (though very few were done), three to two; while during the very busy months of October, November, and December, it kept to the three to two of the late summer and early autumn months.

⁵A large proportion of the men, 347 cases (about 16 per cent.) and 445 cases (about 33 per cent.) of the women, had passed their time of usefulness, and their occupation had to be regarded as "nil."

heated materials, gave by far, the lowest age for the operative procedure, fifty-eight years.⁶

The third class, (c), composed of those in such employments as book binders, compositors, edge-tool makers, engravers, jewelers, shoemakers (particularly), and tailors, showed the lenticular condition fit for removal at an average age of sixty-three years.

The fourth class, (d), made up of those in vocations such as agents, clerks, and professional men, most probably, by reason of better hygiene, etc., gave a very high operative age, sixty-five years, as the average.

In regard to the women, there were but few active ones who were registered otherwise than housekeepers; this no doubt was owing to the fact of the limitation of means of livelihood for women which was existent at the time of the early life of the subjects in question.⁷ The average operative age for the women, without regard to nationality, was, as has been elsewhere alluded to, about sixty-three years; this time ratio being somewhat earlier among the foreign born cases.

(4) *Social Conditions*: Commencing with foreign born married men as the highest at about thirty-three per cent. of the nineteen hundred and eighty-four males, (with a slight difference in favor of the native born) (thirty-one per cent.), the foreign born widowers fell to twelve per cent. and the native born widowers to thirteen per cent. Of the single men, six per cent. were natives, and five per cent. were foreigners. The women, on the contrary,

⁶ It is interesting in this connection, as long known by the writer and elsewhere noted by him, that the eye which is the one that is usually directed toward the heated mass is the one which is generally the only one or the first one which is affected; this type of cases, a pure occupation one, appears very early in life.

⁷ It will be instructive to recompare, and in fact contrast, this work with a similar one made after a lapse of another third of a century; particularly is this so in reference to the part bearing upon the occupations of women.

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gave their greatest showing of twenty-seven per cent. for native born widows, and twenty-four per cent. for native married women; with twenty-two per cent. for foreign born widows, and nine per cent. for foreign born married women. The ratio for single women, though the same in favor of the foreign born, gave the degree of per cent. lower—respectively five and three.

As might be expected from the ordinary course of things, some sixty-five per cent. of the male cases were married, thirty per cent. had been married, and the few remaining five per cent. were single. Fifty per cent. of the female cases were widows, forty per cent. were married, and ten per cent. were single. These results, as is well known in other similar statistical work, showed a slight disproportion in favor of the married male and the widowed female.

1507 LOCUST STREET.